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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/413,552 | 10/06/1999 | DOUGLAS A. HAWKS | 50944.2300 | 2160 |

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EXAMINER

NGO, HUNG V

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2831

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/413,552

Applicant(s)

Hawks et al

Examiner

Hung V. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 31, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 21-29, and 31-36 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 21-29, and 31-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 2, 21, 22, 24-29, 31, 32, 33/31, 33/32 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn.

Glenn discloses a microelectronic device package comprising: a die attach pad (24), said pad having a bottom surface (26); a plurality of substantially flat electrical connectors (53) formed about a perimeter of said die attach pad, wherein said connectors are configured to couple a device to a substrate; and an encapsulant (40) surrounding a portion of said electrical connectors and a portion of said die attach pad, wherein said bottom surface of said die attach pad is substantially free of encapsulant, a coupling of a plurality of wires (58) from said device to one of said connectors (re claim 1).

Re claim 2, wherein said connectors and said pad are formed from a leadframe (abstract).

Re claim 21, wherein said pad is not offset from said connectors (Fig 8).

Re claim 22, wherein said pad is configured to bonded to a device (56) (col 8, lines 50-55).

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Re claim 24, wherein bottom surface of said connectors is substantially free of encapsulant (Fig 8).

Re claim 25, wherein said encapsulant is an epoxy resin (col 7, line 4).

Re claim 26, wherein the conductive path length through said connector is the thickness of said connector (Fig 8).

Re claim 27, 28, wherein said connectors and said die pad feature undercut regions to assist in attachment of said encapsulant (Fig 8).

Re claim 29, wherein portions of a device (56) are electronically coupled to said die pad (Fig 8).

Re claim 31, wherein said connectors are formed from a metal frame (abstract).

Re claim 32, wherein said pad is formed from a metal frame (abstract).

Re claim 33/31, 33/32, wherein said frame is formed of copper (col 3, lines 45-50).

3. Claims 1, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Yagi et al.

Yagi et al disclose a microelectronic device package comprising: a die attach pad (14), said pad having a bottom surface (14b); a plurality of substantially flat electrical connectors (12A) formed about a perimeter of said die attach pad, wherein said connectors are configured to couple a device to a substrate; and an encapsulant (19) surrounding a portion of said electrical connectors and a portion of said die attach pad, wherein said bottom surface of said die attach pad is substantially free of encapsulant, a coupling of a plurality of wires (18) from said device to one of said connectors (re claim 1) (Fig 4)(re claim 1)

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Re claim 22, wherein said pad is configured to bonded to a device (17) by a bonding material (16) (Fig 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23, 34/31, 34/32, are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn

The teaching of Glenn as discussed above does not disclose the wire being formed of gold having a diameter of approximately 25 microns (re claim 23), wherein said frame has a thickness of approximately 200 microns (re claim 34).

It is well known in the electrical art to use gold wire because of its high electrical conductivity. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use gold wire for the wire of Glenn for the purpose of having high electrical conductivity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the wire of Glenn by employing the diameter of 25 micron or to

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modify the frame of Glenn by employing the thickness of 200 microns, since such a modification would have involved a mere change in the size of the wire or frame. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn in view of Kinghorn

The teaching of Glenn as discussed above does not disclose the frame is coated with about 10 micro inches of palladium.

Kinghorn teaches that it is known to coat the frame with about 10 micro inches of palladium (col 6, lines 28-37) for enhancing the bonding of the internal leads to bonding wires (col 1, lines 10-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the palladium coating of 10 micro inches with the frame of Glenn for enhancing the bonding of the internal leads to bonding wires.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al

The teaching of Yagi et al as discussed above does not disclose said device being bonded to said pad using conductive epoxy. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use conductive epoxy for the bonding material of Yagi et al, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Response to Arguments

Applicant's arguments filed 03-31-03 have been fully considered but they are not persuasive.

Applicant argues (1), that Yagi et al or Glenn does not disclose a coupling of a plurality of wires from said device package to one of said connectors. The examiner disagrees. Glenn disclose a coupling of a plurality of wires (58) from said device to one of said connectors and Yagi et al disclose a coupling of a plurality of wires (18) from said device to one of said connectors (Fig 4).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung V. Ngo whose telephone number is (703) 308-7614. The examiner can normally be reached on Tuesday to Friday from 8:30 am to 06:00 pm.

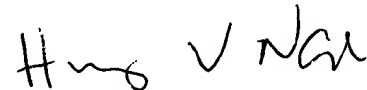
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard, can be reached on (703) 308-3682.

The fax phone number for this Group is (703) 305-3431 or (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Hung V. Ngo

April 23, 2003



HUNG V. NGO
PATENT EXAMINER